

## Message Text

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R 161636Z MAY 75

FM SECSTATE WASHDC

TO AMEMBASSY MOSCOW

UNCLAS STATE 114515

E.O. 11652: N/A

TAGS: BEXP, UR

SUBJECT: PULP/PAPER EXHIBIT/SEMINAR

1. IF SPEAKERS SCHEDULE PERMITS, M/K SYSTEMS WANTS TO PRESENT TWO PAPERS. IF ONLY ONE SLOT HAS BEEN RESERVED FOR THEM BECAUSE OF PRINTING DEADLINE, USDOC/BEWT UNDERSTANDS. THE TWO PAPERS ARE

2. "APPLYING MICROWAVE TECHNOLOGY TO MONITORING THE PAPERMAKING PROCESS (MICROWAVE MOISTURE METER). THE GREAT SPECIFICITY OF MICROWAVES TO LIQUID WATER MAKES THEM THE IDEAL FORM OF RADIATION TO MONITOR WATER. ESSENTIALLY, THEY ARE ATTENUATED ABOUT 25 TIMES AS MUCH BY WATER AS BY VIRTUALLY ALL OTHER LIQUIDS AND NON-METALLIC SOLIDS. HOWEVER, UNTIL THE RECENT MINIATURIZATION OF GENERATING SOURCES, IT WAS NOT POSSIBLE TO CONSTRUCT MICROWAVE MOISTURE METERS PRACTICAL FOR USE IN INDUSTRY; (A) THE M/K SYSTEMS, INC. UNIVERSAL MICROWAVE MOISTURE METER EMPLOYS A MEASURING PROBE ABOUT THE SIZE OF A FLASH-LIGHT. THE SURFACE OF THE PROBE IS HELD AGAINST THE SURFACE OF THE MATERIAL WHOSE MOISTURE CONTENT IS BEING DETERMINED, OR AT A FIXED DISTANCE AWAY. THE PROBE IS UNCLASSIFIED

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CONNECTED TO THE 15X15X20 CM. ELECTRONIC CONSOLE WHICH INDICATES THE MOISTURE CONTENT ON A METER, DIGITALLY, OR

GRAPHICALLY. THE UNITS HAVE AN ADDITIONAL OUTPUT JACK

WHICH CAN BE CONNECTED TO A MOISTURE CONTROLLING SYSTEM, COMPUTER, RECORDER, ETC. (B) THE AMOUNT OF MOISTURE WHICH CAN BE MEASURED IN ANY SHEET-LIKE OR POROUS MATERIAL VARIES FROM LESS THAN ONE G.S.M. TO 1000-1000 GSM, DEPENDING ON THE DISTRIBUTION OF THE MOISTURE THROUGHOUT THE THICKNESS OF THE MATERIAL BEING MONITORED. IN THE CASE OF POROUS BEDS, EVEN HIGHER QUANTITIES CAN BE MEASURED. (C) USING A PAIR OF PROBES, THE INSTRUMENT CAN ALSO -E EMPLOYED TO MEASURE UP TO 10,000 G.S.M. WATER IN TRANSMISSION. (D) THE PRINCIPAL ADVANTAGE OF THE M/K MOISTURE METER OVER OTHERS ON THE MARKET IS THE MUCH SMALLER SIZE OF ITS PROBE AND CONSOLE, MAKING IT MUCH EASIER AND SAFER TO USE EITHER

ON-LINE OR FOR TROUBLE-SHOOTING PURPOSES IN AN INDUSTRIAL ENVIRONMENT. IT IS ALSO THE LOWEST COST UNIT ON THE MARKET DUE TO ALL OF ITS COMPONENTS BEING SOLID STATE. THE ELECTRONIC COMPONENTS ARE ALL EMBEDDED IN EPOXY TO PREVENT DETERIORATION AND ENSURE STABILITY.

3. "THE AUTOMATION OF LABORATORY PULPING AND SHEET FORMING." (A) THE M/K SYSTEMS LABORATORY DIGESTER IS A RESEARCH-SIZE PULPING SYSTEM FOR SIMULATING EITHER BATCH OR CONTINUOUS PULPING. THE SINGLE VESSEL DIGESTER AND BOTH DIGESTERS OF THE DOUBLE VESSEL UNITS HAVE THEIR OWN MAGNETICALLY-COUPLED, 3 1./MIN. CIRCULATION PUMPS, 2 KW. IMMERSION HEATERS, AND TEMPERATURE/PRESSURE CONTROLLERS. THE 6.5 1. PRESSURE VESSELS CAN HOLD UP TO ABOUT 500 G. WOOD CHIPS. THE MAXIMUM OPERATING PRESSURE IS 20 ATM., AND THE LIQUOR CAN BE HEATED UP TO THE COOKING TEMPERATURE (MAXIMUM, 200 C) AT A STEADY RATE OF 1 - 6

C/MIN. VALVES ARE SUPPLIED FOR VENTING THE DIGESTERS DURING THE EARLY STAGES OF COOKING. (B) CONTINUOUS PULPING CAN BE SIMULATED ON THE TWO-VESSEL SYSTEM BY INSTALLING AN INTER-CONNECTING LINE FROM THE BOTTOM OF UNCLASSIFIED

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ONE VESSEL TO THE TOP OF THE OTHER. THE WOOD CHIPS ARE

PRE-STEAMED IN ONE VESSEL AND THE LIQUOR PRE-HEATED IN THE OTHER. CONTINUOUS PULPING IS SIMULATED BY PUMPING THE PRE-HEATED LIQUOR INTO THE VESSEL CONTAINING THE CHIPS. (C) ALL WETTED SURFACES ARE 316 STAINLESS STEEL, ALLOWING THE DIGESTERS TO BE USED FOR OXYGEN PULPING AS WELL. (D) THE M/K SYSTEMS, INC. AUTOMATIC SHEET FORMER IS A FULLY AUTOMATED MINIATURIZED "PAPER MACHINE" WHICH PRODUCES UP TO 54 SQUARE (30 CM. X 30 CM) FULLY PRESSED

AND DRIED TEST SHEETS WITHOUT ANY MANUAL ASSISTANCE. 20-50 SHEETS ARE PRODUCED PER HOUR, DEPENDING ON THE

DRAINAGE RATE OF THE PULP. AS THE SHEETS ARE FORMED IN THE SAME MANNER AS HANDSHEETS, THEIR QUALITY IS EQUAL OR BETTER. HOWEVER, DUE TO THE AUTOMATION OF THE MACHINE, THE UNIFORMITY AND REPRODUCIBILITY OF THE SHEETS IS FAR SUPERIOR TO THAT OF CONVENTIONAL HANDSHEETS.

(E) THE SHEET FORMER CONSISTS OF A FORMING SECTION NOT UNLIKE THAT OF CONVENTIONAL HANDSHEET MACHINES; A TRANSFER ARM WHICH CARRIES THE SHEET FROM THE FORMING WIRE OVER TO A CONTINUOUS PRESS FELT; A PRESSING STATION AGAINST THE DRIER DRUM (LIKE A "YANKEE" DRIER); AND A DOCTORING AND SHEET HANDLING SYSTEM FOR AUTOMATICALLY DEPOSITING THE FINISHED SHEETS INTO A TRAY. (F) SOME OF THE SEVEN MACHINES IN OPERATION HAVE AUTOMATIC CHEMICAL ADDITION SYSTEMS WHICH ADD CHEMICALS IN PRESET QUANTITIES AND MIX THEM WITH THE STOCK FOR PRESENT TIMES. IN EFFECT, EACH SHEET FORMING SYSTEM IS ADAPTED TO THE SPECIFIC NEEDS OF THE CUSTOMER. (G) THE FOLLOWING ARE THE MAIN CONTROLS SET BY THE OPERATOR PRIOR TO MAKING SHEETS: (1) NUMBER OF STOCK TANKS TO BE EMPLOYED, 1-6, (2) NUMBER OF SHEETS FORMED FROM EACH TANK, 1-9 (3) QUANTITY OF PULP PER SHEET (BASED ON PUMPING TIME) (4) QUANTITY OF DILUTION WATER, BOTH FRESH AND RECYCLED, TO

FORM EACH SHEET; UP TO 95 PERCENT OF EITHER CAN BE USED.

(5) AGITATION AND SETTLING TIMES IN FORMING MOLD (6) VACUUM AND PRESSURE USED IN VARIOUS STEPS (7) PRESSING PRESSURE (8) DRIER SPEED AND TEMPERATURE (H) WHEN THE SHEETS ARE FINISHED, THE MACHINE SHUTS ITSELF OFF  
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AUTOMATICALLY, CLEANING OUT ITS LINES AND FILLING THE FORMING MOLD WITH WATER TO PREVENT DRYING OUT OF THE WIRE.

4. PLEASE NOTIFY UNKOVIC OF USDOC/BEWT/OEWTD/TPD IF TIME WILL PERMIT ONE PAPER ONLY. KISSINGER

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